

REMARKS/ARGUMENTS

The Examiner's attention to the present application is noted with appreciation.

Information Disclosure Statement. The Applicant notes that the Office Action mailed February 14, 2001 (Paper 10) contained a copy of an Information Disclosure Statement submitted by Applicant, with the handwritten notation thereon "References not on file." The Information Disclosure Statement was received by the Patent Office on March 24, 2001, and included therewith copies of 96 references. Attached hereto as Attachment A is the return post card, clearly showing receipt on March 24, 2001, and including in the description "Copies of 96 references." If the Office is unable to locate the references, the Examiner is requested to so advise the Applicant prior to the next Office Action, so that the references can again be provided to the Office.

Election/Restrictions. The Examiner has withdrawn claims 63-81 as being directed to a non-elected invention. The stated reason is that "these newly added claims are drawn to the metals which was not originally presented or prosecuted." Applicant respectfully objects to this withdrawal.

The original Election/Restriction Requirement was mailed December 12, 2000 (Paper 7). It required restriction to one of the following inventions: Group I, claims 35-40 drawn to a method of obtaining a peptide; for Group II, claims 41-59 drawn to a combinatorial library, and for Group III, claims 60-62 drawn to a method of making a combinatorial library. In response, Group II, claims 41-59, was elected.

Dependent claim 59, which was subject to the restriction requirement and included in Group II, was drawn to "[t]he combinatorial library of claim 50 wherein each constituent library member further comprises a metal ion complexed to the metal ion-binding backbone." Thus the elected invention of Group II necessarily included a metal ion. Applicant does not understand how including other metal ions changes the claim. Because Group II as restricted in the initial Election/Restriction Requirement mailed December 12, 2000 included the library with members complexed to a metal ion, addition of other claims to the same subject does not present a non-elected invention.

Applicant submits that, e.g., an amino acid sequence which includes "a metal ion-binding

backbone for complexing with a metal ion" (see claim 41) is not subject to restriction as to a claim to a sequence defined in the same way where the metal ion-binding backbone is complexed with a metal ion.

However, Applicant has amended claim 71 such that the "metal ion" is not a limitation of the claim.

It is noted that, consonant with originally elected Group II, there are dependent claims to libraries which include a metal ion (see claims 63, 64, 65 and 66, dependent on claim 41; claims 59, 68, 69 and 70, dependent on claim 50, and claims 72 and 73, dependent on claim 71).

Amendment to Claims. The claims are amended to more clearly state the invention, consonant with the suggestions of the Examiner. Independent claims 41 and 50 have been amended to more specifically define the structures. First, the transition language in the preamble has been changed to "consists of." The structures are now defined as a solid phase bound library with each constituent member consisting of between four and about twenty amino acid residues, with three forming a metal ion-binding backbone for binding to either technetium or rhenium, and to provide that the library members comprise a sequence of no more than "about twenty amino acid residues." It has been made explicit that such sequences, when the metal ion-binding backbone is complexed with a metal ion, form conformationally constrained reverse turn structures which mimic reverse turn structures. See the amendment to each of claims 41 and 50. Support for the amendment is found, inter alia, at page 30, lines 6-11. In claims 41 and 50 it is specified that the sequence is "predetermined" (i.e., known); support is found throughout the specification, see, e.g., page 26, line 27; page 27, line 26; and page 64, lines 1-3. Given that the peptides are synthesized (including use of split pool and other methodologies), it is inherent in the method of synthesis that the sequence would be known or predetermined.

Oath/Declaration. Applicant submitted a properly signed declaration with the application as filed, and attached a copy of the declaration, as Attachment A, to the Response to Office Action filed July 16, 2001. The declaration shows an execution date by the inventor of December 29, 1999, and this declaration specifically claimed priority to S.N. 08/660,697, filed June 5, 1996. Applicant does not understand why these declarations have not been matched with the file; in any event, an additional copy of the declaration with an execution date by the inventor of December 29, 1999 is submitted with this

Amendment. Note that on page 4 of 7 of the declaration the box is checked with respect to claiming priority to an earlier application, and that on page 2 of 3 of the Added Pages the prior application is specified.

Claim Rejections - 35 U.S.C. § 101.

Claims 41, 43-50 and 52-59-59 are rejected under 35 U.S.C. § 101 on the grounds that the claimed invention is not supported by either a specifically asserted utility or a well established utility. For the following reasons, Applicant respectfully traverses this rejection.

Independent claims 41 and 50 have been amended to more specifically define the structures. First, the transition language in the preamble has been changed to "consists of." Additionally, the structures are now defined as a solid phase bound library with each constituent member consisting of between four and about twenty amino acid residues, with three forming a metal ion-binding backbone for binding to either technetium or rhenium, and to provide that the library members comprise a sequence of no more than "about twenty amino acid residues." Finally, it has been made explicit that such sequences, when the metal ion-binding backbone is complexed with a metal ion, form conformationally constrained reverse turn structures which mimic reverse turn structures. See the amendment to each of claims 41 and 50. Support for the amendment is found, inter alia, at page 30, lines 6-11.

The complexation of a tripeptide sequence including at least one residue with an available sulfur atom for complexation to either a technetium or rhenium metal ion forms a conformationally constrained secondary structure which is a mimic of a reverse turn structure. Reverse turn structures are well-known in the biological sciences, and many, if not most, receptor-ligand interactions involve a reverse turn structure.

There is nothing about "screening" per se that may appropriately be asserted in a 35 U.S.C. § 101 rejection. As MPEP § 2107.01 discusses, there is no proper rejection on the grounds that an invention is a "research tool." Because, in part, of the specific and recognized utility of mimics of reverse turn structures, the invention as now claimed has both a specifically asserted utility and a well established utility. The specifically asserted utility is discussed throughout the application. The application accordingly

discloses use of libraries directed toward integrin receptors that recognize the RGD sequence (page 59, line 1 and following); tuftsin receptors (page 60, line 22 and following); peptide hormone receptors, such as somatostatin, cholecystokinin, opioid, melanotropin, LHRH, tachykinin and similar peptide hormone receptors (page 62, line 11 and following); and so on. Examples 67 through 74 (pages 124-127) provide specific guidance on how to construct and use libraries. The utility is well established because the importance of reverse turn structures in receptor binding is well known. Libraries which provide mimics of such structures inherently have utility.

Claim Rejections - 35 U.S.C. § 112, First Paragraph. Claims 41, 43-50 and 52-59 are rejected under 35 U.S.C. § 112, first paragraph. The Office Action notes (page 5) that the specification is enabling for a the specific library that binds to rhenium metal. It is submitted that both rhenium and technetium metals are used throughout the specification, and that rhenium and technetium are taught as having similar chemistries and being substantially interchangeable. See, e.g., specification at page 45, lines 11-16, and page 46, lines 17-20. Additionally, a number of actual examples of complexation with technetium are described throughout the specification. Claims 41 and 50 have been amended such that the metal ion-binding domain is specific for technetium or rhenium ions. Accordingly, it is submitted that this ground of rejection is overcome.

At page 6 of the Office Action, it is asserted that certain language is not supported in the as-filed specification. Claims 41 and 50 have been amended to more clearly describe the invention. It is asserted that the difference in either "the selection or the sequence" may be in any part of the library member, including either the metal ion-binding domain or residues at either or both the N- or C-terminus. However, there is clear support in the specification for the "unique" sequence being either in the metal ion-binding domain or outside the metal ion-binding domain. See, e.g., page 32, line 19 bridging page 33, line 5. See also page 58, lines 8-16; page 59, line 4-28; and page 124, lines 12-14 (disclosing variation in the metal ion-binding domain by use of either Cys(Trt) or D-Cys(Trt)).

Claim Rejections - 35 U.S.C. § 112, Second Paragraph.

With respect to point 1) on page 7 of the Office Action, claim 41 has been amended consonant with the Examiner's suggestion. Claim 41 recites a "combinatorial solid phase bound library" and the first limitation describes the sequence of between four and about twenty amino acid residues as "bound to solid phase." It is submitted that this removes any ambiguity.

Further with respect to point 1), the word "unique" has been deleted, and is replaced with a functional description as to both claims 41 and 50.

With respect to the asserted inconsistency of claims (page 8 of the Office Action), the claims have been amended to address this concern.

Claim Rejections - 35 U.S.C. §§ 102 and 103.

Claims 41, 45, 46, 47, 50, 54, 55 and 59 were rejected under 35 U.S.C. § 102(a) as anticipated by, or in the alternative, under 35 U.S.C. § 103 as obvious over, Francis et al [(J.Am.Chem.Soc.) (I) or Current Opinion in Chemical Biol. (II)]. For the reasons set forth below, Applicant respectfully traverses this rejection.

Francis I and II Are Not Prior Art. Another copy of the declaration claiming priority is submitted herewith. The specification on which this application is based was S.N. 08/660,697, filed June 5, 1996. Francis II was published in 1998. Francis I was published 18 September 1996 (see Information Disclosure Statement by Applicant listing the publication date; see also Attachment B hereto). There is no basis for a rejection under either 35 U.S.C. § 102(a) or 35 U.S.C. § 103. See, e.g., MPEP § 706.02(a). As provided in MPEP § 706.02(a), for § 102(a) to apply, the "reference must have a publication date earlier in time than the effective filing date of the application." The references do not. Accordingly, these references may not properly be applied.

Claims 41, 43-50, 52-59 were rejected under 35 U.S.C. § 103 as obvious over Kay et al. (5,498,538). For the reasons set forth below, Applicant respectfully traverses this rejection.

Kay Neither Anticipates Nor Renders Obvious the Claims. Kay teaches a phage display library. Claim 41 is to a synthesized library wherein members are bound to solid phase. Claim 50 is to a library

synthesized in solution. While there is a similarity between phage display libraries and synthesized libraries (i.e., both can be peptides made of amino acids), as noted by the citation from the disclosure, there are nonetheless specific and well-recognized differences. First, the phage display library of Kay is limited to the 20 coded or naturally occurring amino acids (see Kay '538 at col. 13, lines 4-8); the invention of claims 41 and 50 is not so limited. Second, claims 41 and 50 as amended are drawn to a "predetermined" sequence (i.e., as a result of the synthetic methodology the sequences made are known). The phage display library of Kay is expressly described as having a sequence of amino acids that is "unpredictable and substantially random in sequence." See Kay '538 at col. 13, lines 8-16. Third, the phage display library of Kay is expressly described as having between 20 and 100 amino acids (see Kay '538 at col. 16, lines 53-67); the invention as claimed in claims 41 and 50 is to between 4 and about 20 amino acid residues.

However, as amended claims 41 and 50 are drawn to a compositions where the metal ion is technetium or rhenium. Kay '538 discloses only zinc, copper and nickel. Col. 47, lines 58-61. Further, while as the Office Action notes, "Kay recites that cys residues participate in Z coordinate by protein in vivo, citing Berg," nonetheless Kay teaches that for his constructs Cys does not participate. Kay teaches that it is known that Cys does not participate in immobilized metal affinity chromatography, citing Yip and Arnold. The statistical evidence of virtually no cysteine residues demonstrates that they do not participate in binding. Finally, the teaching of Kay '538 is limited to binding to metal column (immobilized metal affinity chromatograph (IMAC) with iminodiacetic acid-sepharose used to coordinate and immobilize Zn^{+2} in a tridentate fashion). See Kay '538 at col. 47, lines 62-67. By contrast, claims 41 and 50 each require that the metal ion-binding backbone be for "binding to a metal ion in solution." Thus the invention as claimed is not obvious over Kay. Given that the zinc is bound to the column in a "tridentate fashion" in Kay '538, Kay '538 also fails to teach a "metal ion-binding backbone for complexing with a metal ion." Kay at most teaches a single amino acid residue (such as His) which binds in conjunction with the iminodiacetic acid that forms a tridentate bond with the zinc. Thus the invention is not obvious over Kay.

In view of the above amendments and remarks, it is respectfully submitted that all grounds of rejection and objection have been avoided and/or traversed. It is believed that the case is now in condition for allowance and same is respectfully requested.

If any issues remain, or if the Examiner believes that prosecution of this application might be expedited by discussion of the issues, the Examiner is cordially invited to telephone the undersigned attorney for Applicant at the telephone number listed below.

Also being filed herewith is a Petition for Extension of Time to November 29, 2004, with the appropriate fee, together with a Request for Continued Examination. Authorization is given to charge payment of any additional fees required, or credit any overpayment, to Deposit Acct. 13-4213. A duplicate of this paper is enclosed for accounting purposes.

Respectfully submitted,

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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EXAMINER

ART UNIT	PAPER NUMBER
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DOCKETED

Reply due 5-14-01

DATE MAILED: 02/14/2001

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

RECEIVED

FEB 19 2001

Peacock, Myers & Adams, PC

Office Action Summary

Application No.

09/483,837

Applicant(s)

Shubh

Examiner

T. Wessendorf

Group Art Unit

1627



☒ Responsive to communication(s) filed on 1/17/01

☐ This action is FINAL.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 35 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claim

☒ Claim(s) 35-62 is/are pending in the application

Of the above, claim(s) 35-40 and 60-62 is/are withdrawn from consideration

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 41-59 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☒ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☐ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 4

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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Applicant's election of Group II, claims 41-59 in Paper No. 9 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claims 35-40 and 60-62 are withdrawn from further consideration pursuant to 37 CAR 1.142(b) as being drawn to a nonelected inventions, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 9.

The oath or declaration is defective. A new oath or declaration in compliance with 37 CAR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:
It claims priority to S.N. 08/476,652, filed on 6/7/95 which is inconsistent with the priority claim at page 1 of the instant specification. The specification claims priority to S.N. 08/660,697 filed on 6/5/96 as per Prel. Amendment of 1/17/00.

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

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35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 41-59 are rejected under 35 U.S.C. 101 because the claimed invention is not supported by either a specifically asserted utility or a well established utility.

The claimed combinatorial library fails to comply with the above 101 statute that a claim to a product or composition be new and useful. The claimed combinatorial library, as broadly interpreted, reads on naturally occurring catalytic antibodies, for example, that represent or generated by the immune system. This combinatorial library is nothing more than a collection of known, existing compounds and therefore can not be considered new. Furthermore, the specification asserts the utility of the combinatorial library for screening. But screening is not a specific utility. As with all collections, screening are done, to isolate a specific compound that yields a specific utility. A patent application is a not a hunting license rather, a reward for the successful accomplishments of a search. An assessment that focuses on whether an invention is useful only in a research setting thus does not address whether the specific invention is

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in fact "useful" in a patent sense. A collection or mixture of different compounds does not have a specifically identified utility, rather an invention whose specific utility requires "intermediate" or "for research purposes" which are not helpful in determining if applicant has identified a specific utility for the claimed collection or library . (See MPEP 2107).

Claims 41-59 also rejected under 35 U.S.C. 112, first paragraph. Specifically, since the claimed invention is not supported by either a specifically asserted utility or a well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention.

Claims 41-59 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for the specific library that binds to rhenium metal, does not reasonably provide enablement for any type of combinatorial library with at least three residues, two of which form a metal-ion binding domain. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

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The scope of enabling disclosure provided in the specification e.g., page 124, Example 67 is not commensurate in scope with the broadly, incompletely identified components of the claimed library. The claimed library covers too numerous variables for which the specifically designed library would not provide as enabling disclosure. The specification merely provides the known multiple synthesis of the library but does not identify a specific components of the library and more importantly, the conditions necessary for the bioassays, as asserted. The claim is nothing more than an invitation to experiment.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 41-59 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

1). The following language "synthesized on solid phase"., "forming a metal ion-binding domains"; "cleavable bond attaching the sequence to solid phase" all relate to method of synthesis rather than to the claimed library or collection of

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compounds. The term 'unique' within the claimed context, is indefinite as to the basis or standard by which said sequence is categorized as unique. Also, the term domain, within the claimed context, fails to set the metes and bounds of the claimed invention. A sequence of one residue is indefinite since a sequence contains more than one residue.

2). Claim 45 recitation of 'removable ' is indefinite for failing to ascertain the claimed invention with precision.

3). The use of abbreviations e.g., Trt renders the claim indefinite. It is suggested that applicants recite for the complete name e.g., trityl. E.g., claim 46.

4). The terms 'outside' and 'diversity' fail to ascertain the claim with precision, especially since the claimed library does not contain any structure. E.g., claims 47-48.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 41, 45, 46, 47, 50, 54, 55, 59 are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Francis et al [(J.Am. Chems.Soc.)(I) or Current Opinion in Chemical Biol.(II)]

The broadly recited combinatorial library of peptide sequence that contains a metal-ion binding portion is fully met by the combinatorial library of Francis containing specific peptide components that bind to the specifically recited different metals. See pages 8983-8984.

See the entire disclosure of Francis II specifically at e.g., page 422, col. 2 up to page 428. Therefore, the library of Francis anticipates or renders obvious the claimed invention. Claims 41-59 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kay et al (5,498,538).

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The broadly recited combinatorial library of peptide sequence that contains a metal-ion binding portion is fully met by the combinatorial library of Kay containing specific peptide components that bind to the specifically recited different metals See e.g., col. 47, line 55 up to col. 56. Therefore, the library of Kay anticipates or renders obvious the claimed invention.

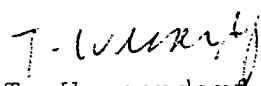
Certain papers related to this application may be submitted to Art Unit 1627 by facsimile transmission. The faxing of such papers must conform with the notices published in the Official Gazette, 1156 O.G. 61 (November 16, 1993) and 1157 O.G. 94 (December 28, 1993) (see 37 C.F.R. 1.6(d)). The official fax telephone numbers of the Group are (703)308-7924. NOTE: If applicant does submit a paper by fax, the original signed copy should be retained by applicant or applicant's representative. NO DUPLICATE COPIES SHOULD BE SUBMITTED so as to avoid the processing of duplicate papers in the Office.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to T. Wessendorf whose telephone number is (703) 308-3967. The examiner can normally be reached on Mon. to Fri. from 8 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jyothsna Venkat Ph.D.,

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can be reached on (703) 308-0570. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0196.


T. Wessendorf
Patent Examiner
Art Unit 1627
2/12/01

INFORMATION DISCLOSURE TATION
(Use several sheets if necessary)

ATTY DOCKET NO.

70025-990

SERIAL NO.

09/483,837

APPLICANT(S)

Shubh D. Sharma

FILING DATE

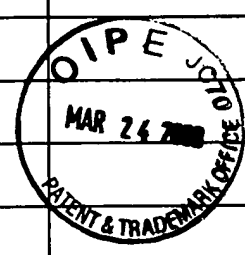
January 17, 2000

GROUP

Unknown

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	4,390,528	06/28/83	NAJJAR	424	177	
	4,427,646	01/24/84	OLEXA et al.	424	1.1	
	4,479,930	10/30/84	HNATOWICH	424	1.1	
	4,578,079	03/25/86	RUOSLAHTI et al.	623	11	
	4,650,787	03/17/87	SCHALLY et al.	514	11	
	4,668,503	05/26/87	HNATOWICH	424	1.1	
	4,680,276	07/14/87	BACH et al.	436	542	
	4,732,864	03/22/88	TOLMAN	436	547	
	4,849,505	07/18/89	STAVRIANOPOULOS	530	300	
	4,859,765	08/22/89	NESTOR, JR. et al.	530	333	
	4,863,898	09/05/89	ASHMEAD et al.	514	6	



DEC 3 - 2004

TECH CENTER 1600/2398

FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
						YES	NO
	2,016,235	11 Sep 90	Canada				
	94810008.6	10 Jan 94	EPO				
	PCT/US93/05372	04 Jun 93	PCT				
	PCT/US93/04794	21 May 93	PCT				
	PCT/US93/03687	19 Apr 93	PCT				

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

	"Conformational Restrictions of Biologically Active Peptides Via Amino Acid Side Chain Groups" by V. J. Hruby. Life Sciences, Vol. 31, pp. 189-199.
	"Complexes of Technetium-99m with Tetrapeptides, a New Class of Tc-labelled Agents" by H.P. Vanbilloen et al. Nuc. Med. Bio., 22: 325-337.
	"Secondary Structure Nucleation in Peptides. Transition Metal Ion Stabilized α -Helices" by M.R. Ghadiri et al. J. Am. Chem. Soc. 1990. Vol. 112, No. 4. pp. 1630-1632
	"Peptide Architecture. Design of Stable α Helical Metallopeptides via a Novel Exchange-Inert Ru iii Complex" by M.R. Ghadiri et al. J. Am Chem. Soc. 1990, Vol. 112, No. 26. pp. 9633-9635

EXAMINER

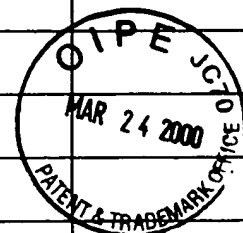
DATE CONSIDERED

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

INFORMATION DISCLOSURE TATION <i>(Use several sheets if necessary)</i>	ATTY DOCKET NO. 70025-99P2	SERIAL NO. 09/483,837
	APPLICANT(S) Shubh D. Sharma	
	FILING DATE January 17, 2000	GROUP Unknown

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	4,883,861	11/28/89	GRILL et al.	530	326	
	4,986,979	01/22/91	MORGAN, JR. et al.	424	1.1	
	5,028,593	07/02/91	NISHIOKA	514	18	
	5,023,237	06/11/91	PICKART	514	18	
	5,059,588	10/22/91	PICKART	514	12	
	5,091,176	02/25/92	BRAATZ et al.	424	78.17	
	5,118,665	06/02/92	PICKART	514	6	
	5,157,023	10/20/92	LIPTON	514	18	
	5,196,510	03/23/93	RODWELL et al.	530	324	
	5,200,504	04/06/93	GHADIRI	530	304	
	5,214,131	05/25/93	SANO et al.	530	345	



DEC 3 - 2004

TECH CENTER 1600/2800

FOREIGN PATENT DOCUMENTS

DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
					YES	NO
PCT/US93/02320	12 Mar 93	PCT				
PCT/US92/10716	19 Nov 92	PCT				
PCT/US94/06274	03 Jun 94	PCT				
PCT/US94/08335	21 Jul 94	PCT				
PCT/US92/00757	07 Feb 92	PCT				

OTHER DOCUMENTS *(Including Author, Title, Date, Pertinent Pages. Etc.)*

		<p>"A Convergent Approach to Protein Design. Metal Ion-Assisted Spontaneous Self-Assembly of a Polypeptide into a Triple-Helix Bundle Protein" by M.R. Ghadiri et al. J. Am. Chem. Soc. 1992, Vol. 114, No. 3. pp. 825-831.</p> <p>"Synthesis and Radiochemical Studies of Model Chelators For Tc-99m" by P.R. Singh et al. Proceedings of the 43rd Annual Meeting, Journal of Nuclear Medicine. June 4, 1996. p. 28p.</p>
		<p>"A Review of the Utility of Soluble Peptide Combinatorial Libraries" by C. Pinilla et al. Biopolymers (Peptide Science), Vol. 37, 1995. pp. 221-240.</p> <p>"Design of Metal ion Binding Peptides" by R. Fattorusso et al. Biopolymers (Peptide Science), Vol. 37, 1995. pp. 401-410.</p>

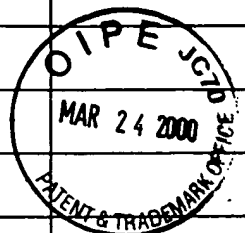
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

INFORMATION DISCLOSURE <i>(Use several sheets if necessary)</i>	ATTY DOCKET NO. 70025-9902	SERIAL NO. 09/483,837
	APPLICANT(S) Shubh D. Sharma	
	FILING DATE January 17, 2000	GROUP Unknown

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	5,225,180	07/06/93	DEAN et al.	424	1.1	
	5,328,840	07/12/94	COLLER	435	240.2	
	5,371,184	12/06/94	RAJAGOPALAN et al.	530	324	
	5,382,513	01/17/95	LAM et al.	435	7.1	
	5,382,654	01/17/95	LYLE et al.	530	311	
	5,395,609	03/07/95	STUTTLE	424	1.69	
	5,408,036	04/18/95	GHADIRI	530	304	
	5,410,020	04/25/95	GHADIRI	530	333	
	5,438,119	08/01/95	RUTTER et al.	530	333	
	5,440,013	08/08/95	KAHN	530	317	
	5,443,815	08/22/95	DEAN et al.	424	1.41	



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FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
						YES	NO
	PCT/US93/06029	23 Jun 93	PCT				

OTHER DOCUMENTS *(Including Author, Title, Date, Pertinent Pages, Etc.)*

		"Novel Biopolymers for Drug Discovery" by E.J. Moran et al. Biopolymers (Peptide Science) Vol. 37, 1995. pp. 213-219. "One-Bead-One-Structure Combinatorial Libraries" by M. Lebl et al. Biopolymers (Peptide Science) Vol. 37, 1995. pp. 177-198.
		"Discovery of Sequence-Selective Peptide Binding by Synthetic Receptors Using Encoded Combinatorial Libraries" By W.C. Still. Acc. Chem. Res. 1996, Vol. 29, No. 3. pp. 155-163. "Strategy and Tactics in Combinatorial Organic Synthesis. Applications to Drug Discovery" By E.M. Gordon et al. Acc. Chem. Res. 1996, Vol. 29, No. 3. pp. 144-154.

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INFORMATION DISCLOSURE CITATION

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ATTY DOCKET NO.
70025-9902

SERIAL NO.
09/483,837

APPLICANT(S)
Shubh D. Sharma

FILING DATE
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GROUP
Unknown

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	5,443,816	08/22/95	ZAMORA et al.	424	1.69	
	5,464,934	11/07/95	DUNN et al.	530	326	
	5,470,753	11/28/95	SEPETOV et al.	436	89	
	5,475,085	12/12/95	KAHN	530	317	
	5,556,609	09/17/96	ZAMORA	424	1.69	
	5,569,745	10/29/96	GOODBODY et al.	530	328	
	5,670,155	09/23/97	KAHN	424	208.1	

FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
						YES	NO

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

		"Design, Synthesis, and Evaluation of Small-Molecule Libraries" By J.A. Ellman. Acc. Chem Res. 1996, Vol. 29, No. 3. pp. 132-143.
		"Multiple-Component Condensation Strategies for Combinatorial Library Synthesis" By R.W. Armstrong et al. Acc. Chem. Res. 1996, Vol. 29, No. 3. pp. 123-131.
		Guest Editorial by A.W. Czarnik. Accounts of Chemical Research, Vol. 29, No. 3, March 1996. pp. 112-113.
		"Synthesis and Applications of Small Molecule Libraries" by L.A. Thompson et al. Chem Rev. 1996, Vol. 96, No. 1. pp. 555-600.

EXAMINER

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INFORMATION DISCLOSURE CITATION <i>(Use several sheets if necessary)</i>	ATTY DOCKET NO. 70025-990	SERIAL NO. 09/483,837
	APPLICANT(S) Shubh D. Sharma	
	FILING DATE January 17, 2000	GROUP Unknown

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE



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FOREIGN PATENT DOCUMENTS

DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
					YES	NO

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

		"In-111 Laminin Peptide Fragments for Malignant Tumor Detection" By D. Swanson et al. Jour. Nuc. Med. Vol. 34 Np. 5, 1993. p. 231P.
		"The use of a chelating derivative of alpha melanocyte stimulating hormone for the clinical imaging of malignant melanoma" By E.P. Wraight et al. British Journal of Radiology, 1992, Vol. 65. pp. 112-118.
		"BisMSH-DTPA A Potential Imaging Agent for Malignant Melanoma" By D.R. Bard et al. Annals of New York Academy of Sciences, Vol. 680, 1993. pp. 451-453.
		"Prediction of The Secondary Structure of Proteins from Their Amino Acid Sequence" By P.Y. Chou et al. Graduate Department of Biochemistry, Brandeis University, Pub. No. 1195. pp. 45-148.

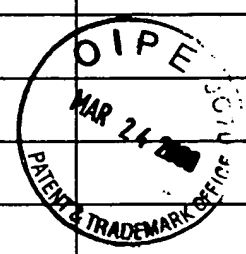
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	APPLICANT(S) Shubh D. Sharma	
	FILING DATE January 17, 2000	GROUP Unknown

U.S. PATENT DOCUMENTS

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FOREIGN PATENT DOCUMENTS

DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
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OTHER DOCUMENTS *(Including Author, Title, Date, Pertinent Pages, Etc.)*

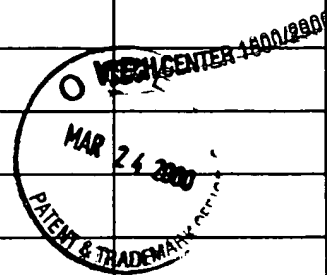
		"Protein and Amino Acid Chemistry" by V.J. Hruby et al. Synthetic Peptides, A User's Guide, 1992. pp. 11-24.
		"Bis(Aminothiol) Oxorhenium Complexes Whose Structure Mimic Steroids" By R. K. Hom et al. J. Nuc. Med., June 14, 1995. p. 68P.
		"Conformational Design and Constraint" By V.J. Hruby et al. Synthetic Peptides, A User's Guide, 1992. pp. 58-67.
		"Applications of Synthetic Peptides" By V.J. Hruby et al. Synthetic Peptides, A User's Guide, 1992. Chapter 5. pp. 259-345.

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	APPLICANT(S) Shubh D. Sharma	
	FILING DATE January 17, 2000	GROUP Unknown

U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
							DEC 3 - 2004



FOREIGN PATENT DOCUMENTS								
		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
							YES	NO

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)			
			"Zinc Coordination, Function, and Structure of Zinc Enzymes and Other Proteins" By B.L. Vallee et al. Biochemistry, Vol. 29 No. 24, 1990. pp. 5647-5659.
			"Zinc Fingers" By D. Rhodes et al. Scientific American, Feb. 1993. pp. 56-65.
			"A Consensus Zinc Finger peptide: Design, High-Affinity Metal Binding, a pH-Dependent Structure, and a His to Cys Sequence Variant" By B.A. Krizek. H. Am. Chem. Soc., Vol. 113 No. 12, 1991. pp. 4518-4523.
			"Calcium-Induced Peptide Association to Form an Intact Protein Domain: 1H NMR Structural Evidence" By G.S. Shaw et al. Science, July, 1990. pp. 280-283.

EXAMINER	DATE CONSIDERED
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INFORMATION DISCLOSURE CITATION
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70025-9902

SERIAL NO.
09/483,837

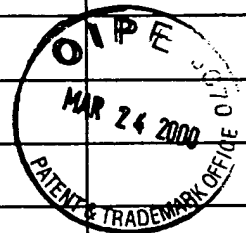
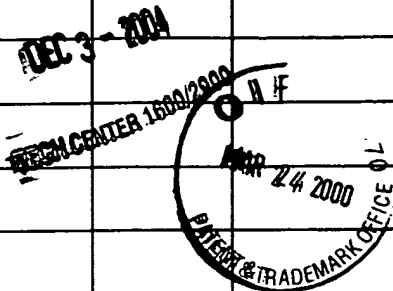
APPLICANT(S)
Shubh D. Sharma

FILING DATE
January 17, 2000

GROUP
Unknown

U.S. PATENT DOCUMENTS

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FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
						YES	NO

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

		"Calcium-induced Protein Folding: Structure-Affinity Relationships in Synthetic Analogs of the Helix-Loop-Helix Calcium Binding Unit" By R.E. Reid et al. J. Bio. Chem. Vol. 256, No. 6, 1981. pp. 2742-2751.
		"Iron (II) Organizes a Synthetic Peptide into Three-Helix Bundles" By M. Lieberman et al. J. Am. Chem. Soc., 1991, Vol. 113 No. 4. pp. 1470-1471.
		"Conformationally restricted peptides through short-range cyclizations" By C. Toniolo. Int. J. Peptide Protein, Res. 35, 1990. pp. 287-300.
		"Peptide-Membrane Interactions and a New Principle in Quantitative Structure-Activity Relationships" By R. Schwyzer. Biopolymers, Vol. 31, 1991. pp. 785-792.

EXAMINER

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INFORMATION DISCLOSURE CITATION <i>(Use several sheets if necessary.)</i>	Docket Number (Optional) 70025-9902	Application Number 09/483,837
	Applicant(s) Shubh D. Sharma	
	Filing Date January 17, 2000	Group Art Unit Unknown

U.S. PATENT DOCUMENTS							
EXAMINER INITIAL	REF	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE



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FOREIGN PATENT DOCUMENTS								
	REF	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	Translation	
							YES	NO

OTHER DOCUMENTS <i>(Including Author, Title, Date, Pertinent Pages, Etc.)</i>		
		"Conformation and complexation with metal ions of cyclic hexapeptides: cyclo (L-Leu-L-Phe-L-Pro) ₂ and cyclo [L-Cys(Acm)-L-Phe-L-Pro] ₂ " By E. Ozeki et al. Int. J. Peptide Protein Res. 34, 1989. pp. 111-117. "Design, Synthesis, and Complexing Properties of (1Cys-1'Cys,4Cys-4'Cys)-dithiobis(Ac-L1Cys-L-Pro-D-Val-L-4Cys-NH ₂). The First Example of New Family of Ion-Binding Peptides" J. Am. Chem. Soc. Vol. 115-25. pp. 11664-11670.
		"Homodimeric and Heterodimeric Bis(amino thiol) Oxometal Complexes with Rhenium(V) and Technetium(V). Control of Heterodimeric Complex Formation and an Approach to Metal Complexes that Mimic Steroid Hormones" By D.Y. Chi et al. J. Med. Chem., 1994, Vol. 37 No. 7, pp. 928-937 "Protein Structure" By V.J. Hruby et al. Synthetic Peptides, A User's Guide, 1992. pp. 24-33.

EXAMINER	DATE CONSIDERED
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INFORMATION DISCLOSURE CITATION

(Use several sheets if necessary...)

Docket Number (Optional)

70025-9902

Application Number

09/483,837

Applicant(s)

Shubh D. Sharma

Filing Date

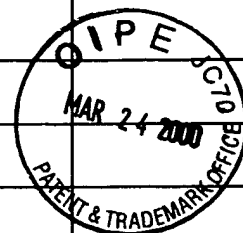
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Group Art Unit

Unknown

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	REF	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE



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FOREIGN PATENT DOCUMENTS

	REF	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	Translation	
							YES	NO

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

		"Secondary Structure Prediction" By V.J. Hruby et al. Synthetic Peptides, A User's Guide, 1992. pp. 39-41.

EXAMINER

DATE CONSIDERED

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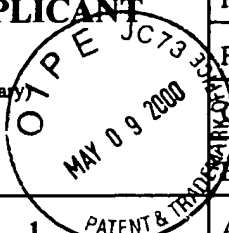
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PTO/SB/08B (10-96)

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Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

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Substitute for form 1449B/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary) 				COMPLETE IF KNOWN	
				Application Number	09/483,837
				Filing Date	January 17, 2000 DEC 3 - 2004
				First Named Inventor	SHARMA, Shubh D. TECH CENTER 1600/2900
				Group Art Unit	1616
Examiner Name	D. Jones				
Sheet	1	of	1	Attorney Docket Number	70025-9902-11

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS			
Examiner Initials	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T ²
tdw		SEVERIN, Kay, et al., "Bioorganometallic Chemistry-Transition Metal complexes with α -Amino Acids and Peptides," <i>Angew. Chemie, International Edition</i> , Vol. 37, No. 12, June 1998, pp. 1635-1654.	
		FRANCIS, Matthew B., et al., "Combinatorial Libraries of Transition-metal Complexes, Catalysts and Materials," <i>Cur. Opin. in Chem. Biol.</i> , Vol. 2, June 1998, pp. 422-428	
		FRANCIS, Matthew B., et al., "Combinatorial Approach to the Discovery of Novel Coordination Complexes," <i>J. Amer. Chem. Soc.</i> , Vol. 118, No. 37, 18 Sept. 1996, pp. 8983-8984.	

Examiner Signature	T. Wenzel	Date Considered	2/12/01
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¹ Unique citation designation number. 2. Applicant is to place a check mark here if English language Translation is attached.

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Substitute for form 1449A/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT (use as many sheets as necessary)				COMPLETE IF KNOWN		
				Application Number	09/483,837	
				Filing Date	January 17, 2000	
				First Named Inventor	SHARMA, Shubh D.	
				Group Art Unit	1616	
				Examiner Name	D. Jones	
Sheet	1	of	1	Attorney Docket Number		70025-9902-11

U.S. PATENT DOCUMENTS

Examiner Initials	Cite No. ¹	U.S. Patent Document Number	Kind Code ² (if known)	Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
TW		5,565,325		Blake	Oct. 15, 1996	—
		5,498,538		Key, et al.	Mar. 12, 1996	—

FOREIGN PATENT DOCUMENTS

Examiner Initials	Cite No. ¹	Foreign Patent Document Office ³	Number ⁴	Kind Code ⁵ (if known)	Name of Patentee of Applicant of Cited Document	Date of Publication of Cited Document	Pages, Columns, Lines Where Relevant Passages or Relevant Figures Appear	T
TW		WO	97/33626		Univ. of Massachusetts	18 Sep. 1997	—	
TW		WO	99/10016		Resolution Pharmaceuticals, Inc.	4 Mar. 1999	—	

Examiner Signature	T. Weenandy	Date Considered	2/12/01
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1. Unique citation designation number. 2. See attached Kinds of U.S. Patent Documents. 3. Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). 4. For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. 5. Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. 6. Applicant is to place a check mark here if English language Translation is attached.